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1 -- we -- we have quite a bit of video but it's of the
 2 actual testing.
 3 But -- but the photographs document the
 4 initial trench before the pipe went in and then the
 5 act of placing the pipe in and -- and compacting soil
 6 around it.
 7 Q. And were those photographs of the initial
 8 procedures produced this morning on the jump drive?
 9 A. Yep. All my photographs are on the jump
 10 drive as well as the video.
 11 Q. Okay, great. Did you use new Ameron pipe
 12 for the testing?
 13 A. Yes. I -- well, I -- I don't know the
 14 pedigree of the pipe. I -- I understand there was
 15 some difficulty in getting true exemplary pipe. So I
 16 -- I don't know what vintage it was but it certainly
 17 appeared that it was -- it had not been used. It may
 18 have been sitting on -- on -- in some warehouse
 19 somewhere for some time. So I -- I don't know the
 20 pedigree.
 21 Q. What difficulties did Crane experience in
 22 obtaining the pipe?
 23 A. Well, it wasn't so much difficulty as --
 24 as we went through Talon and -- and they supplied the
 25 pipe to us.

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1 I don't know if they had it in their
 2 inventory or if they got it from one of their
 3 suppliers, but I -- I don't recall the details. But
 4 it might have been simply that pipe isn't made
 5 anymore, so the inventory just didn't exist. So we
 6 -- we received one -- one length of it.
 7 Q. So Crane did not obtain the pipe.
 8 A. No. It was -- it was shipped to us.
 9 Q. It was shipped to Crane by Talon?
 10 A. Umm, I -- I think it was Talon who shipped
 11 it to us. And they didn't ship it to Crane. They
 12 shipped it to the site where we did the testing.
 13 Q. Okay, so you don't know precisely where
 14 the pipe came from.
 15 A. No, other than I believe that Talon
 16 procured it for us.
 17 Q. And you do not know the age of the pipe.
 18 A. I do not. And I'm -- I'm trying to recall
 19 if we have -- if we have those records or not. I --
 20 I -- I don't recall.
 21 Q. Did anyone with Crane contact Ameron?
 22 A. I had a -- I had a conversation with one
 23 of their engineers by -- by phone.
 24 Q. Do you recall the name of that engineer?
 25 A. I'll -- I'll have to look it up.

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1 (Witness examined document)
 2 A. It was Mr. Hector Mercado. I had a phone
 3 call with him on October 6th of 2011.
 4 Q. Did you initiate the phone call with Mr.
 5 Mercado?
 6 A. I -- I believe I did, yes.
 7 Q. And what was your purpose for initiating
 8 that phone call?
 9 A. It -- it was primarily to understand
 10 materials of construction. What are the fibers, what
 11 is the resin, how is the pipe wound. Because at that
 12 point, I -- I -- I don't believe I had seen the --
 13 the actual -- the subject pipe. So I -- I was --
 14 essentially an inquiry to understand what this pipe
 15 looks like.
 16 Q. Do you recall talking with Mr. Mercado
 17 about anything other than the qualities of the pipe?
 18 A. I wouldn't call it qualities of the pipe.
 19 It -- it's ---
 20 Q. --- Okay.
 21 A. --- It's properties of the pipe. No, it
 22 was ---
 23 Q. --- Thank you.
 24 A. --- Simply just the properties of -- and
 25 -- and with -- within reason, obviously, he's not

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1 going to give away any manufacturing secrets. But
 2 basically it's just what are the -- what's it made of
 3 and generally how is it made.
 4 Q. When you spoke with Mr. Mercado, did you
 5 request a sample of the pipe or a length of the pipe?
 6 A. I -- I don't recall.
 7 Q. Did you ask Mr. Mercado if the pipe had
 8 changed or been modified in any way in the past 30
 9 years?
 10 A. I -- I may have asked him that. But I --
 11 I don't know whether I did or not.
 12 Q. So you don't recall whether Ameron had
 13 changed or modified the manner in which the pipe was
 14 manufactured in the past 30 years -- or changed or
 15 modified the properties of the pipe in the last 30
 16 years?
 17 A. No. I -- again, I may have asked that but
 18 my understanding is that this is a series 2000 pipe.
 19 And so it generally -- large changes aren't -- aren't
 20 usually made.
 21 But they have other lines, you know, they
 22 have a 7000 series which is carbon fibers as opposed
 23 to glass fiber. So generally if -- if there's a
 24 large change, they just assign a different name to it
 25 or -- or a different type.

20 (Pages 74 to 77)

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1 Q. When you obtained -- or more correctly
2 received -- the Ameron pipe, did you notice any
3 differences between that sample length and the
4 subject pipe?

5 A. Well, we received a 20-foot length of pipe
6 whereas the -- the -- the subject pipe, I think, was
7 on the order of three feet or so in length. So it --
8 I mean, it was -- it was cut from the pipeline. So
9 it -- it wasn't -- obviously wasn't the original
10 length.

11 Q. Right. Aside from the length, were -- did
12 you observe any differences in the sample pipe and
13 the subject pipe?

14 A. No. It looked nominally similar.

15 Q. In the testing that Crane performed, it
16 used a John Deere 200CLC excavator. Correct?

17 A. That's what the -- the quarrying company
18 owner told me it was. I don't think there were any
19 markings on it to -- to indicate that other than it
20 was a John Deere.

21 Q. So you're relying on the quarrying owner
22 to indicate the equipment that was used?

23 A. Well, in part. But I also had -- he
24 supplied -- I -- I believe, the specs for it. And so
25 certainly what I saw that day was consistent with

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1 what -- what -- what the brochure said.

2 Q. Okay. Was that the same type excavator
3 that was used by Talon at the MCAS New River Project?

4 A. Umm, I believe they are different
5 manufacturers. I believe the -- the Talon excavator
6 was a little bit smaller.

7 Q. So the excavator that was used by Talon at
8 the MCAS New River Project was smaller than the one
9 used in Crane's testing.

10 A. I -- I believe in -- in gross weight it
11 was smaller. But in terms of horsepower, length of
12 the boom, size of the bucket, I -- I -- I -- my -- I
13 don't have -- I don't have that readily available
14 right now.

15 Q. Do you have measurements -- strike that.

16 When you say length of the boom, are you
17 referring to what a lay person would call the arm of
18 the excavator?

19 A. Right. Yeah, yeah.

20 Q. Okay.

21 A. Yeah, the thing that the bucket's attached
22 to.

23 Q. I want to make sure that we're on the same
24 page.

25 Do you have measurements of the length of

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1 the boom for the Talon excavator?

2 A. I don't.

3 Q. And do you have measurements for the
4 length of the boom of the John Deere excavator?

5 A. I don't.

6 Q. Do you know why a different type and size
7 excavator was used in Crane's testing?

8 A. It -- it came down to availability. And
9 -- and not so much availability of the excavator, but
10 the availability and willingness of a contractor to
11 modify their bucket to -- to suit our needs. Because
12 the -- this testing required physical modification to
13 the bucket to -- to accommodate what we were -- what
14 we were doing on the testing.

15 And -- and so you know, my -- my -- my
16 view of -- of the -- the size of the excavator was --
17 was less important because it was, both excavators,
18 the Talon one and then the -- the quarrying
19 excavator, are both capable of -- of supplying much,
20 much more force than we would ever need.

21 You know, they could have crushed the pipe
22 in both instances, so -- so supply of force wasn't an
23 issue. It was just simply getting the -- the
24 characteristics of the bucket, which is what we
25 wanted.

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1 Q. What was the size of the bucket on the
2 Talon excavator?

3 A. I believe it -- I think -- I believe it
4 was about 24 inches but I'll have to check the -- the
5 photographs.

6 If you want to wait, I can see if I can
7 find it.

8 Q. Sure.

9 (Witness examined document)

10 A. You know, I would have to -- here we go.
11 It was nominally 24 inches -- 23 inches.

12 Q. What was the size of the bucket used for
13 Crane's test?

14 A. Umm, that -- that's the width of the
15 bucket.

16 Do you mind if I start up my computer,
17 'cause that's -- that's the only way I'll -- I'll be
18 able to ---

19 Q. --- Not at all.

20 A. I -- I don't have a direct measurement of
21 it. But it -- judging from the photographs, it's --
22 it's about a -- a 36-inch width bucket.

23 Q. So the size of the bucket on the Talon
24 excavator and the size of the bucket used for the
25 test were different. Correct?

21 (Pages 78 to 81)

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1 A. Yes.
 2 Q. Why is that?
 3 A. Well, it's basically what we had. And
 4 again, the -- the size of the bucket isn't -- isn't
 5 so important as what the -- what the leading edge
 6 looks like and the force that you can apply.
 7 So the -- the important part of this was
 8 having the bucket with certain features on the -- on
 9 the leading edge. The size of the bucket doesn't
 10 matter. And -- and really the -- the general size of
 11 the excavator didn't matter in -- in our view.
 12 Q. What was the length of the finishing edge
 13 on the Talon excavator?
 14 A. It spanned the -- the width of the -- of
 15 the bucket, so about 20, 23, 24 inches.
 16 Q. What was the length of the finishing edge
 17 on Crane's test?
 18 A. I'd say between 20 and 24 inches.
 19 Q. Was a measurement taken at the time of the
 20 test?
 21 A. I can -- I can measure from my photograph,
 22 but -- I measured the width of the tooth. And then
 23 based on the width of the tooth I can infer the other
 24 dimensions if I had a -- a ruler, but I didn't place
 25 a tape measure on the -- on the bucket itself.

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1 Q. Okay. How was the finishing edge attached
 2 to the teeth on the Talon excavator?
 3 (Witness examined document)
 4 A. Well, the Talon excavator had teeth
 5 itself. The -- the -- the finishing edge was applied
 6 to the end of the teeth.
 7 I'm not sure of the physical mechanism by
 8 which it -- it was attached. But -- you know,
 9 whether it was by welding or whether it was integral
 10 with the teeth. I'm -- I'm -- I'm not sure.
 11 Q. How was the finishing edge attached to the
 12 teeth on the Crane's test?
 13 A. By -- by welding.
 14 Q. Okay. So it may be that the finishing
 15 edge on a Crane excavator was attached in a different
 16 manner than the finishing edge on the excavator used
 17 in your testing?
 18 A. Well, I -- I'm -- I imagine so. They are
 19 two different -- but they -- they certainly were
 20 rigidly attached.
 21 Q. Do you know why a different method of --
 22 excuse me -- of attachment may have been used?
 23 A. No. And a lot of times these are -- these
 24 are functions that are performed in the field, field
 25 modification. So again, it's probably a case by case

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1 basis as to how they're attached.
 2 Although, I do know the -- generally the
 3 teeth are removable and they're held in place with a
 4 pin.
 5 Q. What was the width of the tooth used for
 6 scraping in Crane's testing?
 7 A. It was nominally three and a quarter
 8 inches.
 9 Q. Okay. In your initial report do you opine
 10 that a four-inch object made the scrape?
 11 A. It appeared that a -- a nominal four-inch
 12 object had -- had induced the damage, yes.
 13 Q. So why not use a four-inch tooth in your
 14 testing?
 15 A. It came down to availability. What we had
 16 was a three and a quarter inch, and from an
 17 engineering mechanic standpoint, it's -- the affect
 18 would be similar whether it's three and a quarter or
 19 four inches.
 20 Q. Did you ever physically examine the Talon
 21 excavator and finishing edge?
 22 A. I did not, no.
 23 Q. Is your knowledge of the Talon excavator
 24 and finishing edge based on photographs?
 25 A. Yes.

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1 Q. And you produced all your photographs to
 2 us today?
 3 A. Yes, but not necessarily the -- the
 4 photographs I -- actually, I think they're in there.
 5 I received photographs as part of
 6 discovery and I believe that they're all on that
 7 thumb drive.
 8 Q. Did you receive photographs from Talon as
 9 part of discovery?
 10 A. I -- I may have. But the -- I received
 11 emails from -- from -- from Clyde Williamson of Talon
 12 as part of the normal, I guess, correspondence, and I
 13 do believe that some attachments were sent by -- by
 14 him.
 15 Q. Okay.
 16 A. And those emails are part of the -- the
 17 file.
 18 Q. Okay.
 19 MS. GAVALIER: It's 12:30. Lunch is
 20 here, so I would say let's take a break.
 21 THE WITNESS: Okay.
 22 (12:32-1:01 p.m. - Luncheon recess)
 23 Q. (Ms. Gavalier) All right, Mr. Pfaendtner,
 24 prior to our lunch break we were talking about your
 25 August 29th, 2014, report and some of the details

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1 about the procedures that were employed, so I would
2 like to just pick up there and continue with that
3 line of questioning.

4 After you backfilled the trench, did you
5 measure the soil compaction?

6 A. No.

7 Q. So you don't know the percent compaction
8 of the soil after you backfilled the trench?

9 A. No.

10 Q. Did you measure the soil compaction during
11 your test?

12 A. No. We didn't measure soil compaction
13 other than having compacted it.

14 Q. And how did you compact the soil?

15 A. With a -- I'm not sure what the device is
16 called, but it's -- it's a little thumper that --
17 it's an automated compactor. So an operator pushes
18 it around and -- actually it's shown in the
19 photographs.

20 Q. So at no point during the testing was the
21 soil compaction measured?

22 A. No.

23 Q. Do you know the percent compaction of the
24 soil around the pipe in question at the time of the
25 incident?

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1 A. I think primarily to the degree that had
2 we not compacted the soil, the -- the pipe may have
3 wandered around. So our -- our primary reason for
4 burying it was so that it stayed in one place while
5 we contacted it with the -- the excavator.

6 Q. How much force did the finishing edge
7 apply to the pipe during the testing?

8 A. I don't know that. We -- that was
9 unmeasurable other than the operator conducted the
10 four tests. The -- the excavator operator conducted
11 the four tests in a nominally similar manner, which
12 includes application of force.

13 Q. So the application of force was determined
14 by the excavator operator?

15 A. Well, he and I had eye contact. Certainly
16 he was coming down, as you'll see in the video. You
17 know, we had to find the pipe first. It was buried
18 in soil.

19 But -- but basically it was -- it was by
20 his -- his feel. And -- and, you know, for -- for
21 some tests I -- I wasn't convinced that there was
22 enough pressure, so I asked him to -- to -- to apply
23 more pressure in both instances, both the -- the
24 straight edge and the tooth ones.

25 Q. Was the objective to have the same amount

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1 A. No.

2 Q. So you do not know the percent compaction
3 of the soil around the pipe in question at the time
4 of the incident?

5 A. No.

6 Q. So since you didn't test the compaction of
7 the soil and you don't know the compaction of the
8 soil near the damaged pipe, you weren't able to
9 compare the compaction of the soil?

10 A. No.

11 Q. Do you feel that the compaction of the
12 soil was relevant to your analysis?

13 A. I -- I think the -- the compaction of the
14 soil would have one way or another certainly
15 influenced the -- the calculation. In particular,
16 you know, the figures 15 and 16 to some degree.

17 But the -- you know, the -- the --
18 certainly the general shape of -- of the deformation
19 would have remained the same.

20 Q. So you said the soil compaction would have
21 influenced the calculation. And you're referring to
22 those calculations in figure 15 and 16. Correct?

23 A. Right.

24 Q. Would the soil compaction also have
25 impacted the physical testing that you did?

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1 of force applied during each of the four simulations?

2 A. Nominally, yes. But since we don't have
3 a force measurement it's -- it's really all visual
4 feedback. Excuse me.

5 Q. And you were relying on the operator of
6 the excavator to apply a similar force in all four
7 simulations?

8 A. Right. Essentially, yes. Sorry.

9 Q. Do you need a quick break?

10 A. Well, I don't know what's going to help.

11 MR. REICH: Some candy, perhaps?

12 THE WITNESS: Candy -- yeah.

13 MR. REICH: Let's see what we have
14 here.

15 THE WITNESS: How about one of the
16 mints?

17 MS. GAVALIER: Just let me know if
18 you need a break.

19 THE WITNESS: No, go ahead.

20 MS. GAVALIER: When I get a tickle
21 in my throat I end up in tears, so...

22 Q. (Ms. Gavalier) Did you try to quantify
23 how much relative force was applied by the finishing
24 edge in the vertical and horizontal positions when
25 the bucket came in contact with the pipe?

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1 A. Yes. We were -- again, but it was all
2 qualitative. It was -- the -- the feedback was
3 visual, so it -- we wanted a certain -- we wanted at
4 least see consistent displacement of -- of the
5 downward displacement.

6 So as, you know, figures 15 and 16 show,
7 there was certainly deformation, -- visible
8 deformation of the pipe that you can see in the
9 videos. So we were -- for the -- after the same
10 nominal deformation.

11 Q. So is it fair to say that in addition to
12 relying on the operator of the excavator to determine
13 the amount of force exerted on the pipe, you were
14 also using visual cues of the pipe deforming?

15 A. Well, that was my visual cue. I had some
16 -- I had line of sight contact with the operator.
17 And so I was just visually confirming or verifying
18 that -- that these were done in nominally the same
19 manner.

20 And -- and so if you watch the video
21 you'll -- you'll see me motioning to -- to come again
22 and -- and do it again with -- with more downward
23 force, again, going for this uniformity.

24 And -- and that is one difference that
25 you'll see. There are multiple contacts for each

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1 could, you know -- or maybe a strain gauge or
2 something, the -- the bucket to determine the force.

3 Q. And when you say you would back out of it,
4 would you first try to model the damaged pipe, and
5 then kind of work backwards to figure out what the
6 force would have been?

7 A. Right. We would -- well, the -- the --
8 the testing we did with the tooth was the only one
9 that produced damage similar to the subject pipe.

10 So what we would do is -- is get to a
11 point where we create a gouge that gave us similar
12 features as the subject one, and then either measure
13 the force in -- in that -- in that case.

14 Q. So you feel like the force exerted on the
15 pipe by the tooth in your testing could be determined
16 by kind of working backwards and using the modeling?

17 A. Well, either case. Right. So I -- I
18 guess the simple approach is -- is to -- is to look
19 at the -- the -- the deformation of the pipe from the
20 testing.

21 And then look at how far down the tooth
22 deforms the pipe in the sense of figure 15 or 16.
23 And then have the -- have the computer tell us what
24 the restoring force is.

25 So obviously this thing wants to bounce

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1 test, whereas certainly the subject one was probably
2 just a single stroke that caused the damage.

3 Q. And the questions I've just posed related
4 specifically to the finishing edge.

5 A. Uh-huh.

6 Q. Would the discussion that we just had
7 apply to the testing done with the tooth as well?

8 A. No. My -- my responses were all in
9 general across all -- all four tests.

10 Q. Okay. I just wanted to make sure we were
11 clear.

12 Do you know the magnitude of force on the
13 pipe in question that caused the damage to that pipe?

14 A. I don't know.

15 Q. Okay. So you don't know what force was
16 exerted by the hydraulic equipment that potentially
17 damaged the pipe?

18 A. We can probably bound that force via the
19 finite element calculations because, obviously,
20 stress is one of the outputs. So we could take that
21 stress and -- and back out a force required to get
22 those deformations.

23 But again, it's -- it's -- it's difficult
24 in that the composite pipe is difficult to model. So
25 conversely if we really wanted to know the force we

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1 back to its original shape, but we can calculate what
2 that force is pushing this thing back to its original
3 shape.

4 Q. Would the amount of force on a pipe change
5 the pattern of the damage?

6 A. Yes, but also depending on what the shape
7 of the -- of the indenter is or the object causing
8 the damage. And -- well, go ahead.

9 Q. Do you know how the excavator operator
10 that damaged the pipe had moved the bucket?

11 A. The subject pipe?

12 Q. Yes.

13 A. It -- it's -- it's fairly apparent that it
14 was an axial movement of the bucket.

15 So along the axis of the pipe because you
16 can sort of see lead-in scratches, as there was sort
17 of low -- lower contact forces were sort of
18 scratching the surface.

19 And then it went deeper and then actually
20 created the gouge and then came back out again.
21 Because generally, scooping with an excavator isn't
22 -- isn't a linear -- you know, it doesn't go down
23 then across.

24 It's -- it's -- it's a scooping motion, so
25 the amount of force applied is -- is variable over --

24 (Pages 90 to 93)

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1 over the stroke.

2 Q. Do you know how the excavator operator
3 moved the bucket in your testing?

4 A. Well, I gave general -- you know, just
5 through digging motion. You know, I didn't -- I
6 didn't try to control, you know, how he digs a trench
7 or anything like that.

8 Q. Do you know what the angle of the bucket
9 was when you scraped the pipe with the finishing
10 edge?

11 A. The angle of the -- or the pitch of the
12 bucket?

13 Q. Yes.

14 A. In our testing?

15 Q. Yes.

16 A. I suppose we could measure it from the
17 photographs and the video. But it was sort of a --
18 more or less a normal -- normal with respect to the
19 -- the pipe, so perpendicular to the pipe.

20 Q. Okay. Was the same angle used for all the
21 simulative testing?

22 A. Yes. And again, it -- you know, it --
23 it's going to be fairly insensitive to contact angle
24 because the -- the thing is rounded, both the tooth
25 and -- and the finishing edge are rounded.

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1 So -- so whether, you know, you have a
2 forward or backward angle it -- it's still going to
3 impart, you know, sort of the same effect on the
4 surface.

5 Q. Did you think about changing the angle?

6 A. No, no. We were -- our -- our -- our goal
7 was to establish the -- the main effect of -- of the
8 different geometries, which we hypothesized to exist
9 ahead of time.

10 Mainly the -- the -- the tooth gives you
11 that shear just like scissors when you're cutting --
12 cutting paper or something. It's that shear that
13 allows you to -- to cut whether it's cloth, fiber or
14 paper to get a -- a -- a fairly straight cut so those
15 -- those -- those fibers were sheared.

16 So the only way to get the shear is to
17 have a -- a corner. And so that was our -- our
18 hypothesis going in as reflected by my first report,
19 that you need the shear.

20 And so the -- the -- the -- you know, the
21 main goal of the testing was testing that shear, so a
22 tooth versus a straight edge.

23 Q. When you did the testing with the
24 finishing edge, was the finishing edge perpendicular
25 to the pipe?

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1 A. I think you asked that already and, yes,
2 nominally perpendicular.

3 Q. Did you consider changing the angle of the
4 finishing edge so that it was not perpendicular to
5 the pipe?

6 A. No. For reasons I just discussed in that
7 the -- the effect should be less sensitive to the --
8 the -- the -- the angle of the bucket, because the
9 leading edge of the -- of the tooth and the -- and
10 the straight edge are -- are rounded.

11 So again, the -- the -- the local
12 mechanics of where this thing touches the surface of
13 the pipe are going to be more or less the same.

14 And -- and the shearing feature is going
15 to be the same because you have that right angle
16 regardless of the -- of the -- of the pitch of the
17 tooth in its contact with the surface of the pipe.

18 Q. And putting the pitch of the tooth aside,
19 did you consider changing the angle of the finishing
20 edge so that it was at a 45 degree angle or a 90
21 degree angle, to see what effect that may have?

22 A. No. No, we didn't explore that effect,
23 but certainly it can be and -- and I don't expect
24 there to be any from a -- just from an engineering
25 sense. I don't see any important variables changing

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1 if you do that that will give you any different
2 result.

3 And -- and maybe had we had some more
4 exemplar pipe we -- we could have done more testing.

5 Q. Did you use all of your exemplar pipe?

6 A. Yes, we did.

7 Q. I believe you describe the width of the
8 scrape on the subject pipe as nominally consistent.
9 Does that sound right?

10 A. Yes.

11 Q. To be clear, what do you mean by that? I
12 think it's on page four, the last sentence under
13 testing of exemplar Ameron bondstrand 2000 pipe.

14 A. Nominally consistent width. That -- that
15 was in describing the -- the damage done by the --
16 the tooth testing.

17 So if you refer to picture or figures --
18 or figure nine -- yeah, figure nine. The -- the
19 swath of -- of damage to the -- the top of the pipe
20 is -- is more or less uniformly in width. You could
21 essentially, you know, define that damage with --
22 with two roughly parallel lines.

23 Whereas, the damage imparted by the -- the
24 straight edge, if you go back to figure -- figure
25 six, you -- you can see that no, you can't put

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1 parallel lines. The -- this -- the deformation is
2 more oval shaped or -- or irregular.

3 And -- and that is due to the effect that
4 both Dr. Manning and I -- I think both explained,
5 that it has to do with the slight variation in the
6 force of the -- of the edge on the surface. The --
7 the more you push down the more contact area you're
8 going to have.

9 And so this -- this contact area here is a
10 function of length along the axis of the pipe. This
11 variation is -- is sort of a variation in how much
12 force was applied.

13 Whereas -- whereas with the tooth, the --
14 the width of the damage is simply defined by the
15 width of your tooth. If you push harder you don't
16 necessarily get more contact area, you just get more
17 force down on the tooth.

18 So that's what we saw on the subject pipe
19 is that you have this -- this -- this swath of damage
20 that is a fairly well-defined width across,
21 consistent with a tooth.

22 It's -- it's more or less independent of
23 -- of -- of the force applied. It just simply, you
24 know, you -- you -- you put a thick swift object down
25 and scrape it across, your damage is going to be

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1 defined by the width of that tooth, whereas in the
2 finishing edge, you have this -- the finishing edge
3 that's wider than the diameter of the pipe.

4 So the contact area is going to vary by
5 how much force is there. So you get this -- this --
6 again, back to figure -- figure six.

7 The -- the variation is simply due to the
8 variation in the force applied. There is nothing
9 about the finishing edge that -- that defines the --
10 the width of the damage on the pipe.

11 I'm sorry. Ask more questions. I'll --
12 I'll clarify.

13 Q. In your opinion, did the width of the
14 scrape on the subject pipe vary?

15 A. Not significantly. It was nominally four
16 inches.

17 Q. And I believe we mentioned this briefly
18 today, but Crane Engineering obtained the subject
19 pipe for examination. Correct?

20 A. Yes.

21 Q. Did Crane Engineering obtain the subject
22 pipe from MDE?

23 A. Yes. It was sent from MDE directly to
24 Crane Engineering with obvious chain of custody
25 paperwork and all that.

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1 Q. And how long did you all have the pipe?

2 A. I forget. It's in our artifact records,
3 but it was I believe several weeks. And then we, I
4 think, transferred it back to the Navy in California.
5 I'm not sure why it was California.

6 Q. Was testing ongoing during the entire
7 period of time that you had the pipe?

8 A. No, no. It's been a while, but -- but
9 generally the way inspections go is you receive the
10 artifacts.

11 You have an inspection date which we had,
12 and Mr. Curran came. We executed the protocol. I
13 believe there was some follow-up activities. Some of
14 the analyses were fairly labor intensive, so they may
15 have taken two or three days to complete.

16 And then generally, we like to keep the --
17 the artifact in our artifact storage until we know
18 we're done. So wait for the results to come back in,
19 you digest them, and make sure you've done everything
20 that you said you were going to do in the protocol.

21 And then once your -- your -- you have all
22 the results and everything, you have everything, then
23 -- then we generally either hang onto the artifacts
24 or -- or send them out. So in this case we -- we
25 sent them back to the Navy.

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1 Q. Did you measure the scrape on the subject
2 pipe during your examination?

3 A. Yes, photographically I did with a tape
4 measure and -- and rulers.

5 Q. Is that in your initial report, I believe,
6 this December 2011?

7 A. It might be. I'm pretty sure the nominal
8 dimensions are given.

9 Q. I'll hand you a copy of that report.
10 (Witness examined document)

11 A. Let's see, 14 inches long. It's on page
12 three, the fourth paragraph from the top. I describe
13 it as 14 inches long and approximately 4 inches wide
14 as shown in figure five.

15 And so figure five has a picture of the
16 pipe with a -- a scale overlaid.

17 Q. And do you recall did you measure the
18 width of the scrape at only one location or at
19 multiple locations?

20 A. There's some variation along the length.

21 You know, on figure six you can see some
22 variation which may have to -- you know, it -- it's
23 likely that this, you know, the original equipment
24 that did the damage wasn't perfectly aligned with
25 this pipe, and -- and impinged on it perfectly at the

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1 -- the apex of the pipe.
 2 It might have been off center, so you
 3 would expect some variation in width just depending
 4 on how the -- the pipe is deflecting underneath the
 5 indentation.
 6 Q. And ---
 7 A. --- But -- but -- but again, the -- the
 8 critical feature is that you have a, you know, this
 9 -- this trough with very well defined boundaries.
 10 So you had 75 percent material,
 11 approximately, removed in the middle, and then a step
 12 up, and then nothing.
 13 So it -- it's -- you went from pristine
 14 pipe down to 75 percent. So there wasn't any diffuse
 15 transition between damaged and undamaged.
 16 Q. And I'll hand you an accident
 17 reconstruction analysis report ---
 18 A. --- Uh-huh.
 19 Q. --- From September 19th, 2012.
 20 And I believe you testified earlier today
 21 that you have seen this report and you reviewed it in
 22 preparation for your deposition today?
 23 A. Yes.
 24 Q. On page 10 of this report ---
 25 A. --- Do you mind if I use my own copy?

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1 Q. Oh, not at all.
 2 A. Page 10?
 3 Q. On page 10 under examination of the
 4 subject damaged pipe section.
 5 At the end of the first paragraph, Dr.
 6 Manning and Mr. Wenzel report that the width of the
 7 scrape range from approximately three inches to four
 8 and a quarter inches.
 9 A. Uh-huh.
 10 Q. Do you see that?
 11 A. Yes.
 12 Q. Do you have any reason to dispute those
 13 measurements?
 14 A. It depends on -- on where you -- where you
 15 measure, so I'm not sure where they measured the --
 16 the -- the three inches.
 17 So I'm looking at figure 13 from my
 18 December 29th, 2011, report, so you know, did they
 19 measure the scraping up here to be three inches?
 20 What I refer to is -- is the general width
 21 of the bulk of the damage, which is, I don't know, 80
 22 percent of the length of the -- of the scrape.
 23 This 80 percent of the length is -- is well
 24 defined at nominally four inches. Whereas, you know,
 25 maybe the -- the three inches was -- was up here

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1 where the bucket just started to come into contact.
 2 You know, sort of either at the beginning
 3 or the end where -- where it's either making contact
 4 or -- or starting to lose contact from the -- during
 5 the stroke of the -- of the bucket.
 6 Q. So ---
 7 A. --- What -- what I did was essentially lay
 8 my scale kind of across this bulk damage area, and
 9 that's nominally four inches.
 10 Q. So the bulk damage area that you refer to
 11 does not include the -- the very beginning part of
 12 the scrape and the very end part of the scrape?
 13 A. And -- and -- right.
 14 Q. Is that a fair characterization?
 15 A. Right. Right. And -- and you know, the
 16 -- you know, the bucket or the excavator that was
 17 operating at the time, if it was an excavator. But
 18 the mechanical equipment that was operating at the
 19 time the subject damage was done, it may not have
 20 been, you know, on level ground or -- or
 21 perpendicular here.
 22 It may have -- you know, the -- the tooth
 23 may have contacted it at, you know, one -- one side
 24 of the tooth -- one corner of the tooth may have
 25 contacted before the other tooth came down, until

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1 finally when it -- it actually dug into the pipe and
 2 -- and did the bulk of the damage here.
 3 So it's clearly -- I mean, I think there
 4 were scrapes here sort of as the -- as the tooth came
 5 down leading into the -- the bulk of the damage.
 6 Q. And when you say there are scrapes here,
 7 just for the record, you're pointing to figure 13 on
 8 page 19 of your December 29th, 2011 report.
 9 And you were pointing to the portion of
 10 the pipe right above the blue tag that says item 3-1.
 11 Correct?
 12 A. Yes. And in the -- the -- the photo
 13 doesn't -- isn't that clear in this copy. But I do
 14 recall at -- at both ends there were apparent
 15 scratches, but without any -- any real material loss,
 16 not like in the middle here.
 17 So -- so it's scratches to the original
 18 surface -- outer surface of the pipe.
 19 Q. Those scratches that we're referring to,
 20 what do you attribute them to?
 21 A. Just the -- the points of initial contact.
 22 Because, again, how an excavator works, it's sort of
 23 a scooping motion. So it's coming down and -- and --
 24 and so here it's sort of kissing the surface.
 25 But -- but then further on in the stroke

27 (Pages 102 to 105)

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1 it's digging deeper and deeper, or applying more
2 force to the top of the pipe.

3 Q. So if we look at the -- the damage as a
4 whole, there is some variation in the width of the
5 scrape. Correct?

6 A. Right. And -- and I guess at some level
7 there's an effect of, you know, the -- the tooth has
8 a finite width. And -- and the point of initial
9 contact is probably at one point because you haven't
10 depressed it.

11 So you -- you know, you make contact and
12 as it goes deeper and deeper, the -- the contact area
13 increases, because you're flattening down the top of
14 the pipe, so....

15 Q. The variation and the width supports a
16 change in pressure. Right?

17 A. At least initially and -- and towards the
18 end, yes. But -- but the -- the sort of -- the
19 middle 80 percent is -- is relatively uniform, again,
20 with -- with this very clear transition from -- from
21 damage to no damage.

22 You don't see that variation that you saw
23 from the testing with the -- the straight edge, which
24 gave you this diffuse crushing deformation. But --
25 but the boundaries of it kind of wandered depending

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1 on the force.

2 Q. We started talking about the testing that
3 you had done I believe before you issued your first
4 report.

5 Is that an accurate characterization of
6 the time, the destructive testing?

7 A. Right, yes.

8 Q. Okay, I'd like to ask you a little bit
9 more about that just to get a feel for what you did.

10 Were there several tests that you did on
11 the subject pipe?

12 A. Well, I guess if you include in tests, you
13 know, visual and microscopic observation then yes,
14 there multiple tests.

15 So we have, obviously, visual observation.
16 We have digital photographs. We have digital light
17 microscope photographs.

18 We have scanning electron microscope
19 images as well as chemical data, because the SCM --
20 you get both visual information -- but also chemical
21 information. So what -- what are the fibers composed
22 of, what, you know, contaminants or -- or such do you
23 see.

24 We made some polished cross sections, so
25 we -- we -- after we cut out -- so this figure 13

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1 showing the blue tabs. These -- these tabs
2 identified areas from which we extracted coupons for
3 further analysis, mainly to look at the cross
4 section.

5 You know, where -- where were the fibers
6 terminated? Were there deep delaminations between
7 the -- the fiber layers, things like that, so -- so
8 these -- these coupons were cut out so we can get a
9 -- kind of a cross sectional view of the damage.
10 This one?

11 Q. I'll find it eventually.

12 Do you feel as though your December 29th,
13 2011 report encompasses all the conclusions that you
14 draw -- have drawn from the destructive testing?

15 A. Certainly with respect to the type of
16 object that could have caused that damage, I think
17 this encompasses those conclusions.

18 But if we sort of -- get further down into
19 the weeds of -- of -- of more of the details, you
20 know, there's been some discussion of -- of the sand
21 or debris that we found between the fibers.

22 Those could be characterized further to --
23 to understand is it truly sand that we see there or
24 is it -- is it clay? But that analysis hasn't been
25 done yet.

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1 So clearly, there -- there are more -- I
2 think more opinions to be had if we pursued it. But
3 to me the -- the -- the prime takeaway is that this
4 -- this damage could have only been caused by this
5 well defined tooth like contact versus a -- a -- you
6 know a straight edge.

7 Q. And what I'd like to do is without going
8 point by point through your initial report, just
9 touch on some of the elements that you discuss that
10 supports that theory.

11 And I'd like to start with in your
12 opinion, where is the pothole in relation to the
13 damaged pipe?

14 A. It's -- it's my understanding up to six
15 feet removed from it based on -- on I guess the
16 various statements made, and I guess primarily by the
17 two town employees and the Amec person, Gabe
18 Gallegos.

19 Q. Mr. Gallegos and Mr. Yosay were Talon
20 employees. So are those the statements you're
21 referring to?

22 A. Or -- right, but who is the Amec? Is it
23 ---

24 Q. --- Brock Trubiano.

25 A. Thank you. Brock.

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1 Q. Okay, and your understanding of the
2 pothole location in relation to the damaged pipe,
3 you're relying on the statements of Mr. Gallegos, Mr.
4 Yosay and Mr. Trubiano?

5 A. Certainly, yes, and I'm thinking are there
6 more.

7 Certainly I -- I put a lot of weight into
8 the -- the description of the actual activities that
9 took place, you know, witnessed by several people of
10 digging down -- after the incident occurred.

11 Digging down, finding the pipe, but not
12 finding damage. Digging in one direction and -- and
13 -- and then not finding anything, and digging in
14 another digging direction, and then ultimately
15 finding the pipe.

16 To me that's -- that's -- that's powerful
17 testimony compared to someone taking two photographs
18 from two different times, from two different vantage
19 points, and then inferring three-dimensional position
20 and space from -- from a two-dimensional photograph.

21 I -- I -- you know, I know of no sort of
22 scientific or -- or, you know, some rigorous process
23 by which you can extract a three-dimensional location
24 and space by looking at, you know, drawing lines on a
25 two-dimensional photograph.

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1 So I know there's been discussion and
2 effort to -- to say that, yes, the -- the pothole and
3 the damage are one in the same. But the actual
4 description of how that damage was -- was discovered
5 is at odds with this attempt to -- to make them one
6 in the same.

7 Q. Mr. Pfaendtner, are you familiar with the
8 designs -- the design drawings that were prepared for
9 this project?

10 A. I have seen them and they're -- they're
11 not so legible. So there's I -- I think limited
12 information that can be drawn from them.

13 Q. But you have had an opportunity to review
14 them?

15 A. Yes.

16 Q. I'm going to hand you what we'll mark as
17 Exhibit 4 and this is sheet M07.

18 (* Exhibit 4 was marked *)

19 Q. Have you seen sheet M07 before?

20 A. I've seen a -- a smaller version of it.

21 Q. It would be nice if we had full-size
22 sheets. But I want to first draw your attention to
23 this shaded portion in the upper left-hand corner.

24 A. Right.

25 Q. Do you know what that shaded portion is?

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1 A. I believe that to be an area of -- of --
2 of construction where the new pipe -- steel pipeline
3 is being laid. And I think it's -- I think
4 essentially what's called a -- or referred to as the
5 tarmac area joining these two larger paved areas.

6 So it's essentially the -- the -- the
7 existing pavement was removed in the strip and then
8 dug down to lay the new pipe.

9 Q. Okay, so the shaded portion is the tarmac.
10 Right?

11 A. Right.

12 Q. Okay. And then this area, it's difficult
13 to describe, but down below a lot of these lines, do
14 you know what type of material, if any, was there?

15 A. Well, it's -- it's all based on
16 photographs, but ---

17 Q. --- Uh-huh.

18 A. --- My recollection of the photographs is
19 that there were grassy areas, dirt areas, some --
20 maybe some trenches with water in them. I don't know
21 if it was a creek or anything, but -- but there was
22 water, you know, trenches with water in the area.

23 Q. Okay. Do you feel like it's fair if we
24 just refer to this area as the grassy area?

25 A. Sure.

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1 Q. Now, the thick dotted line, do you see
2 that?

3 A. Yes.

4 Q. That shows the location of the new pipe.
5 Correct?

6 A. Correct.

7 Q. And there is a point where that new pipe
8 will turn or change location. Correct?

9 A. Yes.

10 Q. And that new point where the new pipe will
11 turn or change locations is station 13407. Correct?

12 A. Yes.

13 Q. All right. Now, there is a thin solid
14 line above the thick dotted line.

15 Do you see that?

16 (Witness examined document)

17 A. Thick solid line. Can you show me on
18 yours?

19 Q. Sure. Let's see, a thin solid line that
20 runs above the thick dotted line.

21 A. Okay. Well, it's not solid though, it's
22 still dashed, at least to my eyes it is.

23 Q. Fair enough.

24 A. Okay. Yes. Right.

25 Q. Is that -- that line that -- has a longer

29 (Pages 110 to 113)

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1 dash ---
 2 A. --- Uh-huh.
 3 Q. --- That's thinner, is that the new
 4 pipeline that's going to be installed?
 5 A. No, that's -- I understand that to be the
 6 existing fiberglass line.
 7 Q. Okay. All right, so we've got the new
 8 line that's going to be installed.
 9 We've got the existing line, and this page
 10 shows where the two cross over. Correct?
 11 A. Yes.
 12 Q. Okay. And that is -- the two lines cross
 13 over just north and west of 13407. Is that correct?
 14 A. Yes, just north and west of the -- the
 15 bend in the new pipeline.
 16 Q. Now, Mr. Pfaendtner, are you familiar with
 17 how the pipe was installed on this project?
 18 A. The new or the old pipe?
 19 Q. The new pipe.
 20 A. No, I -- I really saw no documents other
 21 than these plan views of -- of -- of its location.
 22 Q. Okay. You had testified a few moments ago
 23 that it was your understanding that the new pipe had
 24 to be laid underneath the tarmac. Correct?
 25 A. Yes.

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1 Q. Okay.
 2 A. Well, certainly, it's a buried pipe. I
 3 know that much.
 4 Q. Fair enough.
 5 All right, let me show you what we'll mark
 6 as Exhibit 5.
 7 (* Exhibit 5 was marked *)
 8 (Witness examined document)
 9 Q. And on Exhibit 5 we can see the tarmac.
 10 Correct?
 11 A. Right.
 12 Q. And we can also see what looks to be that
 13 grassy area that we talked about. Correct?
 14 A. Well, what's left of it.
 15 Q. And we can see the damaged area of the
 16 pipe. Correct?
 17 A. Yes.
 18 Q. And we can see a red marker at the bottom
 19 of the page. Correct?
 20 A. Yes.
 21 Q. Now, in the photograph we can also see
 22 that the tarmac, a section of it has been cut away?
 23 A. Yes.
 24 Q. And that presumably the new pipe will be
 25 laid in the center of that cutaway portion of the

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1 tarmac.
 2 A. If you say so.
 3 Q. I'll -- I'll represent to you that Mr.
 4 Williamson testified to that effect.
 5 A. Okay.
 6 Q. Now, the red marker, does the red marker
 7 show where station 13407 would be?
 8 A. I don't know.
 9 Q. Looking at the photograph in conjunction
 10 with Exhibit 4, does it appear that the red marker
 11 shows where station 13407 would be?
 12 A. That's possible. I -- I don't know.
 13 Q. And station 13407 we already established
 14 shows where the new pipe would change direction at
 15 about a 45 degree angle. Correct?
 16 A. Yes.
 17 Q. So if the red marker is indeed 13407, that
 18 it would show where that new pipe changes direction
 19 at a 45 degree angle?
 20 A. Uh-huh. Okay.
 21 Q. And so the new pipe would be going from
 22 that red marker up through the center of the cutout
 23 in the concrete. Correct?
 24 MR. REICH: Objection to the form of
 25 the question.

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1 You can answer.
 2 THE WITNESS: Repeat that, please.
 3 Q. (Ms. Gavalier) The -- the new pipe would
 4 run from the location of the red marker up through
 5 the cut in the concrete of the tarmac.
 6 MR. REICH: Objection to the form of
 7 the question.
 8 THE WITNESS: So are you asking if
 9 the -- the new pipe goes from the stake right down
 10 the middle of the -- the -- of this cut?
 11 MS. GAVALIER: Correct.
 12 THE WITNESS: That's certainly
 13 possible, yeah.
 14 Q. And if the pipe were to go from the red
 15 marker up through the middle of the cut in the
 16 tarmac, it would go over the damaged area of the
 17 pipe. Correct?
 18 A. Umm, not necessarily. It looks like the
 19 damage is off -- off to the side of -- of this -- of
 20 this cut in the tarmac.
 21 Again, we're -- we're looking -- the
 22 pipe's down in a hole and we're comparing a -- a
 23 stake that's on the surface and the cut in the tarmac
 24 that are on the surface, and you're -- and you're
 25 trying to line up damage that's -- that's several

30 (Pages 114 to 117)

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1 feet down. And it -- it doesn't work that way.

2 My interpretation is that the center of
3 this is probably over here to -- to one side of -- of
4 that repair to -- to line up with this -- with this
5 -- with the tarmac, the center of the tarmac.

6 So again, back to this -- this comparison
7 of photographs, he can't do it. You -- you can't
8 take two points on the surface and -- and -- and then
9 relate a -- a three-dimensional position of -- of
10 something out of that plane. You -- you -- you just
11 can't do that.

12 So if -- if you're trying to use this
13 photograph to demonstrate that the pothole and this
14 damage are one and the same, you -- you can't do it,
15 especially a pothole that's only six feet away from
16 the damage.

17 It's like you -- you can sort of put your
18 thumb in the air and say, yeah, you know, this
19 encompasses a 15-foot area. The pothole and the
20 damage are in the same 15-foot area, but I -- I
21 wouldn't go beyond that in -- in -- in drawing
22 conclusions from -- from this -- from a photograph
23 like this because it doesn't stand up to -- to any
24 kind of engineering or -- or technical rigor.

25 Q. So it is your testimony that the damaged

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1 area of the pipe is not in the path from the red
2 marker to the cut in the concrete in the tarmac.

3 A. Well, it might be in the path to maybe one
4 edge of the -- the cut in the concrete over here on
5 the -- on the left.

6 But it certainly doesn't look like it
7 lines up with the middle of the -- if -- you -- you
8 represented to me that the -- that the new pipe is
9 going down the middle of this cut in the tarmac.

10 And then, to me, it doesn't look like they
11 -- they line up, again, because -- because the pipe
12 is several feet below the surface.

13 Q. Now, how many feet below the surface is
14 the pipe?

15 A. I think between four and four and a half
16 feet. At least that's what I -- I read. So -- so to
17 really know where that damage is with respect to that
18 stake and this -- this cut area, you have to survey
19 it.

20 You need to get a -- a -- a true surveyor
21 out there to understand, especially if you're talking
22 about matter -- a matter of feet, six feet. You --
23 you simply can't judge that from -- from a
24 photograph. It has to be surveyed.

25 Q. Do you know why Talon was potholing in

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1 this vicinity on the day of the fuel release?

2 A. I -- I think to physically locate the pipe
3 and to -- to document its elevation.

4 Q. And do you know why Talon was trying to
5 identify or document the location of the pipe?

6 A. Well, I -- I understand they're doing that
7 at various points along the length of the -- the
8 existing fiberglass pipe just so that they can
9 confirm its -- its location at various points.

10 Q. Would it be important to identify the
11 location of the existing pipe at the point where the
12 new pipe will cross over or under it?

13 A. I -- I can imagine, yes, that would be
14 important.

15 Q. Do you know if Talon was tasked with
16 identifying the location of the existing pipe where
17 the new pipe would cross it?

18 A. I -- I don't know that. I don't know how
19 they were assigned their potholing locations.

20 Q. Have you reviewed Talon's contract with
21 Structural Associates?

22 A. I don't know if I have that.
23 (Witness examined documents)

24 A. I -- I don't recall ---

25 Q. --- Okay.

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1 A. --- Whether I've seen it or not.

2 Q. Have you seen Structural Associates'
3 contract with Amec?

4 A. I don't believe I've -- or I -- I don't
5 recall seeing one.

6 Q. Okay. Mr. Pfaendtner, marker tape was
7 found in the excavation area. Correct?

8 A. Yes, I -- that's what I -- I read.

9 Q. Was the marker tape intact?

10 A. Well, intact where? I -- I understand it
11 was broken where Talon had dug the hole and they
12 needed to break the tape in order to go through to
13 find the -- the pipe.

14 So at the point they -- they potholed,
15 they naturally had to break the tape. And it's my
16 understanding when they -- after the incident, when
17 they went back they found the location in which they
18 broke the tape.

19 Q. Did Talon replace the tape where it had
20 been broken?

21 A. I -- I don't know that. But -- but it
22 would -- I ---

23 Q. --- Is it a customary practice to replace
24 the tape if you've had -- if you have to break it?

25 A. I don't know that.

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1 Q. Is broken marker tape necessarily
2 indicative that a prior excavation had been
3 performed?

4 A. Not necessarily. If -- if -- and, again,
5 I don't know what practices -- exact practices are.
6 But if work is done and you uncover a pipe or know
7 that a pipe is there, you -- and -- and -- and it's a
8 permanent installation, that you'd somehow replace
9 the -- the marker tape so you can find it in the
10 future.

11 Q. In fact we have no information that prior
12 excavation work had been performed at the site of the
13 damaged pipe. Correct?

14 MR. REICH: Objection to form and
15 characterization.

16 THE WITNESS: Well, there -- the --
17 the records haven't been produced. So it -- it's
18 uncertain to me what -- what work has been done
19 anywhere.

20 So -- and -- and generally with -- with
21 construction, I understand that the records --
22 they're -- they -- they are recorded. So I -- I've
23 seen nothing that says that work was done or -- or
24 says -- or proves that no work was done, because the
25 records haven't been produced, to my knowledge.

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1 Q. (Ms. Gavalier) Have you sought to obtain
2 the records at -- pardon me.

3 Have you sought to obtain the records of
4 prior excavation work that had been done at this area
5 of the damaged pipe?

6 A. It's certainly a -- a discussion that I --
7 I've had with -- with my clients of where -- where
8 are these records, because in our work at Crane
9 Engineering we -- we deal quite a bit with
10 underground utilities, whether it's water or gas, and
11 -- and in all instances the records do exist. So --
12 so I'm -- I'm -- I'm baffled that those records
13 haven't been produced. And then if -- if the records
14 are produced and it shows up no work has been done,
15 then -- then that -- that would be more satisfying
16 than no records at all.

17 And then to that point, what suggests that
18 work had been done is -- is the physical evidence of
19 no sand, whereas I understand Talon, at all previous
20 potholes they encountered sand around the pipe,
21 whereas here no sand was -- was encountered.

22 So that leads me to believe that something
23 was done, because why would the original installer of
24 this pipe change their installation method,
25 especially when it's in violation of -- of -- of how

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1 a pipeline is supposed to be installed.

2 Q. Have you recommended that the records
3 relating to any prior excavation work at the area of
4 the damaged pipe be obtained?

5 A. I -- I -- I think in a past phone call
6 with my clients that it was -- it was discussed that,
7 yes, we -- if -- if -- if a claim is being made that
8 -- that no work had been done, we ought to request
9 those -- those documents.

10 Q. To your knowledge, the documents have not
11 been requested to date?

12 A. I -- I don't know. Certainly they haven't
13 been produced, at least not -- not to me.

14 Q. And in your experience, excavation work
15 like what we're dealing with in this case would be
16 recorded or documented in some manner?

17 A. Yes. You know, I -- we deal mostly with
18 municipalities. And in all cases, I mean, they have
19 records going back a century of what went where. So
20 I -- I -- I can't imagine the -- the U.S. government
21 would be any less stringent in their -- in their
22 record keeping than -- than a municipality.

23 Q. You mentioned a moment ago that it's your
24 opinion that the lack of sand as backfill around the
25 pipe is an indication of prior excavation work.

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1 Did I say that correctly?

2 A. Well, it -- it's -- it's one of two
3 things. One, it's there was work done subsequent to
4 the initial installation and it was in -- it was
5 backfilled improperly, or the initial installation
6 was done improperly would -- and the latter which I
7 find less likely than -- than to some -- simply a
8 contractor was there digging for something, whether
9 it's -- it's laying power for these lights on the
10 tarmac or -- or the new vault or something, that --
11 that there was activity digging there.

12 Q. You mentioned this a minute ago, and you
13 also mentioned it in your initial report, that the
14 other areas in which Talon potholed, a sand bed was
15 found in those areas. Is that correct?

16 A. Yes.

17 Q. And on what do you base that statement?

18 A. Umm, I think statements made by Mr.
19 Williamson, so by -- by Talon.

20 Q. And are those in conversations that you've
21 had with Mr. Williamson?

22 A. Well, early on in conversations with Mr.
23 Williamson, but then also I think that observation
24 was memorialized in an e-mail. So one of the e-mails
25 in the file says that. I think on -- on every prior

32 (Pages 122 to 125)

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1 pothole sand was -- sand was encountered except for
2 this one.
3 Q. We've talked about Gabe Gallegos, who I
4 believe was Talon's superintendent on the project.
5 Does that sound correct?
6 A. Yes.
7 Q. Okay, and you have testified that you have
8 read his statements. Correct?
9 A. Yes.
10 Q. But you have not read his deposition
11 testimony. Correct?
12 A. I don't think I have his deposition.
13 Q. Okay. I'm going to hand you his
14 testimony. And I recognize that you certainly cannot
15 read it at length with us today. But I'd like to
16 direct you to a couple of sections where he discusses
17 the backfill.
18 A. Okay.
19 Q. If you'll turn first to page 38. And I --
20 probably the easiest way is just to read page 38, 39,
21 and 40 to yourself.
22 A. Okay.
23 (Witness examined document)
24 A. Okay.
25 Q. Okay. On page 39, line four, the question

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1 was asked the other areas that were potholed, did you
2 find the cushion sand or was it all hard dirt.
3 Answer. Some spots had it, some didn't.
4 Question. So it was just sort of
5 sporadic.
6 Answer. Yeah. It wasn't consistent.
7 So does Mr. Gallegos indicate that both
8 sand and clay were found at the potholing location?
9 A. I don't think he mentions clay, but
10 certainly it -- it sounds like there were other soils
11 encountered other than sand.
12 Q. Okay, and if you will turn to page 49, and
13 if you'll just read page 49 and 50 to yourself.
14 (Witness examined document)
15 A. So just through the end of 50?
16 Q. Yes, sir. And on page 49, beginning at
17 line 20, the question is asked of Mr. Gallegos, if
18 you were to venture a ballpark estimate of what
19 portions of the pipeline had the cushion sand and
20 what was just sort of exposed to the hard clay, what
21 would you estimate.
22 Answer. The areas that we uncovered.
23 Question. Yes.
24 Answer. Oh, well, I don't know.
25 Question. Just your best recollection.

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1 Answer. I'm going to say maybe 60 percent
2 had sand, 40 didn't.
3 Question. So it was close to even.
4 Answer. No, 60-40.
5 So Mr. Gallegos is indicating that
6 approximately 60 percent of the areas that Talon
7 excavated had clay. Correct?
8 MR. REICH: Objection to the form of
9 the question. Objection, characterization.
10 THE WITNESS: Sixty percent had
11 clay? Is that what you said?
12 I think you said 60 percent ---
13 MR. REICH: --- That is what counsel
14 said.
15 THE WITNESS: He ---
16 MS. GAVALIER: --- I ---
17 THE WITNESS: --- He said 60 percent
18 had sand, 40 percent didn't. So my -- my -- I assume
19 40 percent had something other than -- than the brown
20 sand that he -- that he called the cushion.
21 MS. GAVALIER: Thank you for the
22 clarification.
23 Q. (Ms. Gavalier) So in your December 29th,
24 2011, report where you indicate that a sand bed was
25 found in the other areas in which the potholes were

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1 dug, that is not a correct statement, is it?
2 A. It was based on information that I had at
3 the time. Although partially true, it -- it seems
4 that -- that the majority of them were -- had sand in
5 them, yes.
6 Q. Sixty percent had sand. Correct?
7 A. Umm, yes, according to Mr. Gallegos.
8 Q. After reading Mr. Gallegos' testimony,
9 would you still make the statement a sand bed was
10 found in the other areas in which the potholes were
11 dug?
12 A. I'd make the statement that sand was found
13 in some of the potholes.
14 Q. Do you have an explanation as to why 40
15 percent of the potholes dug did not have a sand bed
16 as backfill?
17 A. I can speculate. The -- the -- the pipe's
18 been underground since 1984. I understand that there
19 were leaks in it.
20 So there could have been multiple repairs
21 or excavations done over the lifetime and then just
22 improperly backfilled, or unlikely case would be that
23 the -- that the installer buried sand and buried the
24 backfill, which seems unlikely given I am going on
25 the assumption that the pipeline was installed in --

33 (Pages 126 to 129)

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1 in one contract, in one job.

2 Q. But the pipe as it was found in the course
3 of Talon performing its work is embedded in various
4 types of materials. Correct?

5 A. Yes.

6 Q. So is the presence of clay at the area of
7 the damaged pipe necessarily indicative of prior
8 excavation?

9 A. I'd say it's still an indication of prior
10 excavation, but I -- I will certainly leave out -- or
11 -- or won't leave out the possibility of the initial
12 installation having -- I don't know why they'd do
13 this, but they would vary their practice from one
14 place -- location to the next.

15 So I'm -- I'm still of the belief that,
16 you know, given a -- a pipeline of this age, that
17 there were multiple excavations.

18 And maybe if -- if the potholing were done
19 at prescribed locations, maybe that has something to
20 do with -- with locations of prior repair. I don't
21 know.

22 Q. But we have no evidence of prior
23 excavations -- correct -- in the area ---

24 A. --- Well, again ---

25 Q. --- Of the damaged pipe?

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1 A. --- Those documents haven't been produced.
2 But, again, my -- my engineering sense tells me that
3 if you see differences like this, that something was
4 done since its original installation, because I -- I
5 -- I can't imagine why there'd be variation in -- in
6 burying a pipe on -- on this facility, why -- why
7 there'd be specific changes, especially out of clay,
8 which is certainly not one of the -- the recommended
9 backfills, you know, recommended.

10 What's recommended is -- is sort of
11 well-classified, non-native soils be used, whether
12 it's pea gravel or -- or sand, things that are well
13 characterized, whereas, you know, the -- the -- the
14 clay doesn't really belong in that category as do the
15 -- the -- the -- the rocks that we saw in -- in the
16 -- in the trenches there.

17 So it certainly seems unlikely that this
18 clay would have been present from the very beginning.
19 But -- but to me it -- it's -- it's -- it's not
20 so important a point because maybe -- maybe the
21 damage was done at the very beginning when the pipe
22 was being laid.

23 Q. Well, the clay backfill is the one thing
24 that you point to to suggest that excavation work was
25 done at an earlier time. Correct?

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1 A. Yes. But it -- it's not a -- a central
2 tenant of -- of -- of my opinion.

3 Q. Your opinion is that the damage to the
4 pipe was caused at some point before Talon worked on
5 the project. Correct?

6 A. Yes, absolutely.

7 Q. And so if no excavation work had been done
8 since the time of installation, then that damage
9 would have had to occur at the time of installation.

10 A. Correct. Which ---

11 Q. --- But you don't know ---

12 A. --- My understanding ---

13 Q. --- Who installed the original pipe.

14 A. No. But I -- I -- I know -- I know ---

15 Q. --- And you don't know how the original
16 pipe was installed.

17 A. I know it wasn't Talon.

18 Q. Mr. Pfaendtner, do you have any opinions
19 that relate to the fracture pattern on the fiberglass
20 pipe?

21 And I'll qualify that with aside -- we
22 don't need to go back over anything that we've talked
23 about already today.

24 But is there anything else that relates to
25 the fracture pattern that you rely on in forming your

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1 opinions?

2 A. I think we've dis -- covered it.

3 Q. Okay.

4 A. Again, unless you get down into the weeds
5 of how the -- the soil got between -- way down deep
6 inside the -- the laminates, which I know is -- is --
7 was discussed in my first report and I think rebutted
8 by -- by Mr. Manning.

9 Q. And if I recall correctly, it's your
10 opinion that the -- those -- or that soil settled
11 into the crevices over the period of time that the
12 pipe had been damaged. Correct?

13 A. Yes.

14 Q. In your opinion, did the Talon excavator
15 drive over the crossover point?

16 A. I -- I don't know that. Certainly there
17 was heavy equipment in that immediate vicinity.

18 Q. Do you have an opinion on whether the
19 Talon excavator drove over the crossover point?

20 A. It's certainly plausible.

21 Q. Have you done any calculations to
22 determine the force or the pressure that the
23 excavator may have exerted on the pipe?

24 A. Umm, no, other than to say that I've
25 reviewed the -- the MDE calculations with the

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1 understanding that the -- their calculations were for
2 an intact, pristine pipe, whereas it's my opinion
3 that the damage preexisted and so that any surface
4 loads would -- would have been on a compromised pipe.

5 I know Mr. Curran made some back of the
6 envelope cal -- or estimates of -- of how it was
7 compromised just based on the law loss. But those
8 things are inherently difficult to do other than to
9 -- to know that the pipe was severely compromised.
10 So clearly it -- it would not have held up to its
11 advertised rating. It would be something much less
12 than that.

13 Q. Have you reviewed Mr. Curran's
14 calculations?

15 A. Umm, I -- I think I -- I -- I did but I --
16 my -- my recollection is -- isn't so great. But I --
17 I seem to recall it was simply he -- he derated the
18 -- the capacity of the pipe just simply by how much
19 wall it had lost.

20 Q. Did you agree with his calculations, to
21 the best of your recollection?

22 A. I -- I -- I didn't really form an opinion
23 other than to recognize as a materials engineer that
24 -- that this is a -- a severely compromised pipe.

25 Q. And I don't think we need to mark this but

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1 calculations. And -- and from what I understand
2 there's -- there -- you know, there's -- it's
3 essentially a handbook on -- on -- on -- on doing
4 these sorts of calculations.

5 It's, you know, how deep is the pipe,
6 what's the soil level above it, what's the traffic,
7 what's the distribution below it. And -- and there
8 are standard formulas that allow you to essentially
9 transform the surface loads into loads on the -- on
10 the pipe.

11 Q. I'm going to show you what we'll mark as
12 Exhibit 6.

13 (* Exhibit 6 was marked *)

14 Q. This is a statement from Bryan Yosay.
15 Have you ever seen this statement before?
16 (Witness examined document)

17 A. It does not look familiar.

18 Q. Okay. Take just a moment to familiarize
19 yourself with that.

20 (Witness examined document)

21 A. Okay.

22 Q. And we've mentioned Bryan Yosay several
23 times today. I believe that he was the equipment
24 operator for Talon.

25 A. Right.

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1 I just want to show you what's been Bates labeled
2 05000001.

3 Are these the calculations that we're
4 referring to?

5 (Witness examined document)

6 A. I --

7 Q. --- And I should back up. Have you ever
8 seen this piece of paper before?

9 A. It does not look familiar.

10 Q. Okay, so these are not the calculations
11 that Mr. Curran did that you're referring to.

12 A. Well, I -- I mean, I -- I need some time
13 to sit down and with a -- to -- to -- to go through
14 it. So I -- I -- I can't tell you off the cuff if
15 they are or not -- or aren't. I just don't know.

16 Q. Okay. Have you ever done calculations to
17 determine the force or pressure that an object would
18 exert on another?

19 A. I -- I've done many of those but -- but
20 not in a -- a geotechnical sense. I've -- I don't
21 know if I've ever calculated forces on -- on a buried
22 object.

23 Q. Do you feel as though you're qualified to
24 perform those calculations in a geotechnical context?

25 A. Certainly if -- if there were standard

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1 Q. And I believe you testified you had read
2 other statements of his.

3 A. Yes.

4 Q. Okay, but ---

5 A. --- It was not ---

6 Q. --- You had not read his deposition
7 testimony. Correct?

8 A. I have not read his deposition testimony.

9 Q. In this particular statement Mr. Yosay
10 sketches the path of the excavator. Correct?

11 A. Right.

12 Q. Based on Mr. Yosay's sketch, did it --
13 does it appear that the excavator drives over the
14 crossover?

15 A. Well, his path is represented by a single
16 line, whereas the excavator has a -- a -- a --
17 certainly a -- some girth to it. So I -- I think
18 he's depicting the general path that he took. But
19 whether or not one of the tracks crossed the
20 crossover point is, you know, hard to say. I mean,
21 it's a large piece of equipment.

22 Q. It appears that the excavator would have
23 crossed the existing line around where he's labeled
24 with the number four. Is that correct?

25 A. Well, I understand that fuel pit to have

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1 been 30 -- what -- 30 feet from the damage,
2 thereabouts.

3 I mean, to me this -- the -- the size of
4 an excavator is -- is, you know, very much -- as much
5 -- you know, consumes a lot of that -- that 30 some
6 odd feet.

7 So again, this is a thin line, but I
8 imagine if you superimpose the footprint of the
9 excavator, it would consume a lot of this area here.
10 So I -- I view this as a schematic of -- of -- of
11 where he drove it.

12 Q. But it doesn't appear that he drove it
13 over the crossover point. Correct?

14 A. Well, his line doesn't go over the
15 crossover points maybe 'cause he didn't want to
16 obliterate that crossover point on this sketch. I
17 don't -- I don't know.

18 And, then, I -- I guess the other thing,
19 maneuvering a -- an excavator, just from -- from
20 experience watching them, is not a -- it -- it -- it
21 -- it's -- it's not a gentle thing. These are tracks
22 and a lot of times they'll -- they'll -- they'll
23 plant the bucket in order to -- and -- and 'specially
24 in tight quarters to maneuver the -- the excavator up
25 -- so they'll -- they'll plant the bucket and

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1 actually lift the tracks up to move them over.

2 So he -- so he positioned the -- the --
3 the excavator so that he's straddling this pipe in a
4 very tight space. So it's possible that maybe he did
5 that and planted his bucket on the crossover point.
6 But I don't know. It -- it's certainly all
7 plausible.

8 Q. Okay. We can set Exhibit 6 aside.

9 Mr. Pfaendtner, are you aware of any
10 evidence of leaks in the damaged area prior to August
11 9th, 2011?

12 A. None other than I think -- and I forget
13 where I read this in the -- in the file materials but
14 there -- there's some -- someone who stated something
15 about old fuel or plumes.

16 But I forget where -- where I read that --
17 as -- as part of the -- the overall excavation here
18 on Exhibit 5 to expose that -- that pipe, I -- I
19 understand, or at least I interpreted there to be --
20 had to have been evidence of -- of old fuel -- but --
21 but not from the -- the -- the -- the testing that
22 was done with the helium tracer. I don't think they
23 identified this area as being -- as having leaks.

24 Q. Okay, and I just want to make sure that I
25 understand you correctly.

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1 It's your recollection that you read
2 somewhere that -- is it following this fuel release
3 that evidence of old fuel was found during the
4 excavation?

5 A. I -- I -- I don't want to say that
6 definitively but that's -- that's my recollection.
7 But I -- I -- I can't cite chapter and verse. And I
8 -- and I could be wrong. But I -- I thought the
9 testimony said that during this excavation there were
10 signs of -- of old plumes of -- may -- I guess of
11 fuel.

12 Q. During the potholing operation, are you
13 aware of any evidence that Talon found an active
14 leak?

15 A. I -- I don't recall. But I -- I do
16 understand the reason for putting in the new pipe was
17 that this one was leaking or had -- had known leaks.

18 Q. And during the potholing operation, and in
19 that area in which the damaged pipe was found, are
20 you aware of any evidence that Talon found an active
21 leak?

22 A. Well, I think the testimony is that there
23 was no fuel encountered while they were potholing in
24 that area.

25 Q. No fuel encountered in that area. Was

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1 there any odor of fuel encountered in that area?

2 A. I don't recall seeing any -- or having
3 read that there was any odor.

4 Q. During the initial potholing operation,
5 and in that area of the damaged pipe, are you aware
6 of any evidence that Talon found an old leak?

7 A. I have no recollection of -- of seeing
8 that -- or having read that.

9 Q. So during the initial potholing operation,
10 we have no evidence to indicate there was a leak
11 prior to August 9th, 2011.

12 A. I'm sorry. Restate that.

13 Q. During the initial potholing operation, we
14 have no evidence that indicates there was a leak at
15 the area of the damaged pipe prior to August 9th,
16 2011.

17 A. I think that's correct.

18 Q. Okay, so is it fair to say, then, that we
19 went from a no-leak condition on the morning of
20 August 9th, 2011 to a significant-leak condition on
21 the afternoon of August 9th, 2011?

22 A. Yes.

23 Q. And we had discussed earlier today that
24 from the no-leak condition to the significant-leak
25 condition, 9,000 gallons of fuel were released.

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1 Correct?

2 A. Right.

3 Q. So if you can explain to me the drastic
4 and immediate change in condition.

5 A. Uh-huh. Well, that's a good question.
6 And certainly there's this -- this issue of proximity
7 in time Talon was there with an excavator and, oh,
8 then they had a leak, so how -- how does that happen.

9 So it's an area, grass. So -- and we know
10 we have a -- a compromised pipe. We know we have
11 heavy equipment there -- Talon -- and so to me one
12 plausible scenario is is that the existing gouge
13 compromised the pipe but did not compromise it at a
14 point of -- of leaking. And so we have this -- this
15 clay backfill supporting the -- the top of the pipe
16 on this grassy area and then along comes this heavy
17 piece of machinery.

18 So -- so you have heavy machinery in the
19 immediate vicinity of this compromised pipe, and then
20 possibly then crushing or -- or exacerbating the --
21 the damage to the pipe, thereby creating a leak path.
22 So -- so preexisting damage, heavy machinery to -- to
23 cause the -- the breach, or at least the -- to extend
24 the crack to -- to connect to the inside of the pipe,
25 and then the fuel was released.

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1 Attempt -- an attempt is made to -- to
2 transfer the fuel through the pipeline and then it --
3 it -- it bubbles up -- bubbles up along the path of
4 least resistance, which is this loosely-filled
5 pothole that was dug just hours before.

6 Q. And under that theory, with the
7 compromised pipe, the heavy equipment, how do you
8 account for the significant fuel release?

9 In other words, if the pipe is
10 compromised, heavy equipment moves over it, explain
11 why the release would not be slower or less.

12 A. Well, I think it just comes down to simple
13 fluid mechanics. I don't have the answer for you.

14 But if -- if it's being claimed that it is
15 9,000 gallons of fuel coming through that small
16 crack, then I'm -- I guess I'll -- I'll believe it.
17 I -- I don't know what that would look like. But
18 I'll -- I'll -- I'll accept that that 9,000 gallons
19 made it through that crack in the pipe.

20 Q. It would look like five gallons a second.

21 A. Right.

22 Q. And that's fairly significant. Right?

23 A. Sure. Out of a very small crack, yeah,
24 'cause most of the damage was still -- you know, the
25 -- the pipe was still compromised. It wasn't a -- a

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1 gaping hole in there. It was this -- this -- this
2 small, small hole, I mean, effectively a small hole
3 through which fuel could escape.

4 But -- but, you know, the -- the -- the --
5 the -- the -- the damaged portion was much larger an
6 area than -- than the actual opening that allowed
7 fuel to -- to get out.

8 Q. And under the theory with the compromised
9 pipe, the heavy equipment, that equipment would have
10 to exert enough pressure on the pipe -- or, rather,
11 on the ground to actually affect the pipe. Correct?

12 A. Absolutely, yes.

13 Q. Do you know what the amount of that
14 pressure would have to be for the equipment to have
15 actually affected the pipe?

16 A. No, because we don't really know what --
17 what the remaining ligaments were spanning that --
18 that damaged area.

19 But just looking at it in the inspection,
20 it looked like I could take my finger and push it
21 through. So clearly it didn't need a lot of
22 pressure. I -- I -- I felt like I could physically
23 just by hand poke holes in this thing.

24 And -- and in the cross-sections of the
25 damage area there are areas where there's just simply

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1 a -- there's a -- kind of one laminate of -- of
2 fibers left holding this in place. So -- so this
3 thing was highly compromised. So in -- in my view,
4 it -- it's not going to take much. And if you have
5 30,000 pounds four feet away from it, then, yeah, I
6 -- I -- I could easily see -- oh, that's obviously
7 without calculation.

8 But yeah, I -- I've no problem imagining a
9 -- a -- a 30,000-pound excavator to -- to -- causing
10 the -- the -- the last straw to break on this -- on
11 this damaged area.

12 MS. GAVALIER: I think I'm about
13 done, but if we can take about a five-minute break,
14 I'll look through everything and we can wrap up.

15 THE WITNESS: Okay.
16 (2:49-2:56 p.m. - recess)

17 Q. (Ms. Gavalier) Mr. Pfaendtner, I just
18 glanced at the jump drive that you gave me this
19 morning.

20 A. Okay.

21 Q. And unfortunately, I cannot possibly get
22 through all those materials as we sit here this
23 afternoon. And I know that you have an evening
24 flight to catch, so in the event that we have
25 questions that come up about the materials that were

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1 produced today, then we'll just request to speak to
 2 you again.
 3 A. Okay.
 4 Q. To wrap up, it's my understanding that
 5 it's your opinion that the scrape on the damaged pipe
 6 was caused by hydraulic equipment. Correct?
 7 A. Yes.
 8 Q. And it's further your opinion that that
 9 scrape was not caused by Talon's hydraulic equipment.
 10 Correct?
 11 A. Yes, that's correct.
 12 Q. Despite the fact that Talon was potholing
 13 in the vicinity of the damaged pipe using hydraulic
 14 equipment on August 9th, 2011.
 15 A. Right. But there's also hydraulic
 16 equipment there on prior occasions.
 17 Q. Do you feel as though we have covered the
 18 breadth of your opinions in your deposition today?
 19 A. Well, certainly I think we've covered the
 20 -- my opinions. I -- I -- I -- I guess I -- I have
 21 rebuttal opinions on what Mr. Manning has said. I --
 22 I think many of them are -- of which are covered in
 23 -- in -- in the -- the second report.
 24 Q. Are there any rebuttal opinions to Dr.
 25 Manning that you feel are not covered in the

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1 supplemental report?
 2 A. Well, I -- I can -- I -- I think they're
 3 mostly covered but I -- I can -- I'd be happy to
 4 recap those -- those opinions.
 5 You -- you know, to me, it -- it -- it --
 6 it seems that, you know, at issue here is -- or -- or
 7 the main argument -- plaintiff argument is one of --
 8 of proximity in time to this -- this leak event.
 9 But you -- you know, the -- the -- the -- the
 10 facts relied on to come to that conclusion is -- is
 11 -- are -- are -- are weak and then critical
 12 information is being left out, in -- in particular
 13 this idea of -- of the -- the pothole being
 14 co-located with the -- the -- the damage is -- is --
 15 is based on unsound science, mainly a -- a
 16 photographic comparison.
 17 This idea that the -- the scrape was
 18 recent, I think Mr. Manning reply -- or is relying on
 19 a -- a worker from -- I think it's API Plastics --
 20 making a comment that it looks -- it looks fresh.
 21 Q. Uh-huh.
 22 A. But the -- the thing is this -- this pipe
 23 doesn't corrode. So you know, it's fresh maybe in --
 24 in -- in geologic terms because this buried pipe just
 25 isn't going to degrade like a -- a buried waterline

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1 made of iron that's going to rust.
 2 So -- so here, yeah, there's proximity in
 3 time but there's really nothing else. You -- you --
 4 you can't say with any definitive certainty that the
 5 pothole and the damage are -- are the same. You
 6 can't say that the -- the -- the -- the scrape is --
 7 is -- is recent because, in -- in my view, it -- it's
 8 -- there -- there -- there are no developing features
 9 of this pipe that would allow you to say this scrape
 10 happened now versus 10 years ago versus 20 years ago.
 11 It's buried in the ground. It's -- it's inert. So
 12 in terms of geologic time sense, yeah, it's -- it's
 13 fresh. You know, sometime between now and when it
 14 was installed it -- it -- it happened.
 15 And then, I guess, my -- my biggest
 16 criticism is Dr. Manning's figure nine in which he
 17 drew this schematic without calculation or experiment
 18 or anything. It was essentially a cartoon. It -- it
 19 -- it was created by his imagination, not without any
 20 -- any rigor or engineering fundamentals. And -- but
 21 -- but in fact -- so in -- in fact figure nine is
 22 incorrect.
 23 Our calculations and our physical testing
 24 demonstrate that it's incorrect and -- and that the
 25 -- the -- the Talon bucket could not have -- have

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1 caused this damage. The -- the -- the -- the -- the
 2 bullet doesn't match the gun.
 3 So Talon was there with an excavator, yes,
 4 but that excavator -- that bucket wasn't capable of
 5 -- of making that damage.
 6 Q. You mentioned Applied Plastic Sciences.
 7 Does that sound correct as the company that repaired
 8 the damage?
 9 A. Yeah, whoever made the repair, yes.
 10 Q. Okay. I believe his name is Monroe
 11 Jacobs.
 12 Does that ring a bell?
 13 A. No.
 14 Q. Do you know anything about Mr. Jacobs?
 15 A. I don't.
 16 Q. Okay.
 17 A. Other than I -- certainly I -- I -- I
 18 don't doubt his qualifications in -- in terms of
 19 repairing fiberglass pipe.
 20 Q. You expounded on your rebuttal opinions to
 21 Dr. Manning's conclusions. Taking that into
 22 consideration, and everything that we've discussed
 23 today, are there any other opinions that you have
 24 that we did not cover?
 25 A. No, other than those that might come about

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1 as -- as rebuttal to -- to further discovery.

2 Q. Do you feel as though you've had a fair
3 opportunity to express your opinions today?

4 A. Yes.

5 MS. GAVALIER: Okay, I don't have
6 any further questions for you.

7 Thank you very much.

8 THE WITNESS: Uh-huh. Thank you.

9 MR. REICH: No questions.

10 WHEREUPON,
11 at 3:04 o'clock p.m. the deposition was adjourned.
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1 CERTIFICATE OF OATH

2 I, Connie B. Meeker, Notary Public in and
3 for the County of Guilford, State of North Carolina
4 at Large, do hereby certify that there appeared
5 before me the foregoing witness;

6 That the witness personally appeared
7 before me at the date, time and location hereon
8 captioned and was personally sworn by me prior to the
9 commencement of the proceeding in the matter hereon
10 captioned.

11 IN WITNESS WHEREOF, I have hereunto set my
12 hand this the 19th day of May, 2014.

13 Connie B. Meeker

14 Court Reporter

15 Atlantic Professional Reporters

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17 Winston-Salem, NC 27116-1672
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1 CERTIFICATE OF TRANSCRIPT

2 I, Connie B. Meeker, Notary Public in and
3 for the County of Guilford, State of North Carolina
4 at Large, do hereby certify that there appeared
5 before me the foregoing witness;

6 That the testimony was duly recorded by
7 me, reduced to typewriting by me or under my
8 supervision and the foregoing consecutively numbered
9 pages are a complete and accurate record of the
10 testimony given at said time by said witness;

11 That the undersigned is not of kin nor
12 associated with any of the parties to said cause of
13 action, nor any counsel thereto, and that I am not
14 interested in the event(s) thereof.

15 IN WITNESS WHEREOF, I have hereunto set my
16 hand this the 19th day of May, 2014.

17 Connie B. Meeker

18 Court Reporter

19 Atlantic Professional Reporters

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1 WITNESS CERTIFICATION

2 I, JEFFREY ALAN PFAENDTNER, hereby certify:

3 That I have read and examined the contents of
4 the foregoing testimony as given by me at the time
5 and place hereon indicated, and;

6 That to the best of my knowledge and belief,
7 the foregoing pages are a complete and accurate
8 record of all the testimony given by me at said time,
9 except as noted on the Attachment A hereto.

10 I have ___ have not ___ made
11 changes/corrections

12 Jeffrey Alan Pfaendtner

13 I, _____, Notary Public for the
14 County of _____, State of _____,
15 hereby certify:

16 That the herein-above named appeared before me
17 this the ___ day of _____, 19___, and;

18 That I personally witnessed the execution of
19 this document for the intents and purposes as herein-
20 above described.
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24
25

Notary Public

My Commission Expires:

(SEAL)

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1 ADDENDUM A

2 Upon reading and examining my testimony as
 3 herein transcribed, I make the following additions,
 4 changes and/or corrections, with the accompanying and
 5 corresponding reason(s) for the same:
 6

7 Page Line Is Amended to Read

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 23 Jeffrey Alan Pfaendtner
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1 CERTIFICATE OF MAILING

2 I, Cassandra J. Stiles, CVR, do hereby certify
 3 that a true copy of the transcription of the matter
 4 hereon captioned was served on the party named below
 5 by the placement of said transcript copy in the
 6 United States Mail, Priority Mail delivery, with
 7 proper postage affixed, addressed as follows:
 8
 9

10 Jeffrey Alan Pfaendtner
 11 c/o Jonathan Reid Reich, Esq.
 12 WOMBLE CARLYLE SANDRIDGE & RICE LLP
 13 One West Fourth Street
 14 Winston-Salem, NC 27101
 15

16 This the 20th day of May, 2014.
 17
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19
 20 Cassandra J. Stiles, CVR
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40 (Pages 154 to 155)

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